Internship Review

Name: Shravani Rahul Padwal

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Internship at: Western Heat Forge Pvt. Ltd.

Duration: 6 months (3rd July 2025- 2nd January 2026)

Industry Mentor: Mr. Navjyot Singh

Internship Overview

Company Name - Western Heat Forge Pvt. Ltd.

1 **Role**

AIML Intern

2 **Duration**

6 months (4.5 Months completed)

3 **Focus Areas**

Applied AI/ML in industrial systems, Data handling and automation, Dashboard and document management solutions

Company Overview

Company Name- Western Heat Forge Pvt. Ltd.

- Western Heat & Forge Pvt. Ltd. (WHF) is a privately held Indian forging and engineered components company headquartered in Bhosari, Pune. It was **founded in 1982.**

- WHF runs integrated **open-die and closed-die forging**, heat treatment, machining, coating and cladding, supported by **in-house metallurgical and metrological labs.**

- WHF supplies to **Oil & Gas, Automotive, Power, Defense, Construction, and Mining**. Representative products include **valves, fittings, flanges, couplings, drill bits, machined and coated/cladded components.**

- Managing Director: **Sanjay Jindal Sir.**

Projects Undertaken

1

MDO Smart Entry Dashboard

Addressed time-consuming, repetitive, and error-prone manual data entry for shop floor activities by developing an automated digital tracking system.

2

Smart Document Finder

Developed a solution to automate document retrieval, minimizing delays caused by manual searches, misfiling, and duplicate files.

Projects Undertaken

3	**Die Document Finder** Die Document Finder is an intelligent search and retrieval system that instantly locates die-related documents from structured directories using an automated backend for faster and error-free access.

4	**Visitor Management System** A digital visitor management system that captures live photos, auto-records visitor details, and enables QR-based check-in and checkout with real-time data storage in Google Sheets and Drive.

Projects Undertaken

5	**WhatsApp Task Bot** The WhatsApp Taskbot is an automated system that allows employees to **create, assign, and update tasks directly through WhatsApp messages**.

# Project 1: MDO Smart Entry Dashboard

•**Objective:** To automate the manual recording of shop floor activities (Cutting, Forging, Heat Treatment, Shot Blasting, Grinding, MPI) from handwritten registers into digital Google Sheets. This transition aims to reduce manual effort, minimize human errors, and ensure faster, more accurate data for ERP updates and team tracking.

- Enhance data accuracy and reliability.
- Streamline data entry for MDO Office.
- Provide real-time visibility for production tracking.

Tech Stack Used:
•Backend: Flask (Python)
•Frontend: HTML + Bootstrap
•OCR/AI: OpenAI GPT-4o Vision API
•Imaging: OpenCV, pdf2image
•Data/Export: Pandas + openpyxl (Excel templates)

My Role: Full-stack developer, conceptualization, development, testing, and deployment of the dashboard solution.
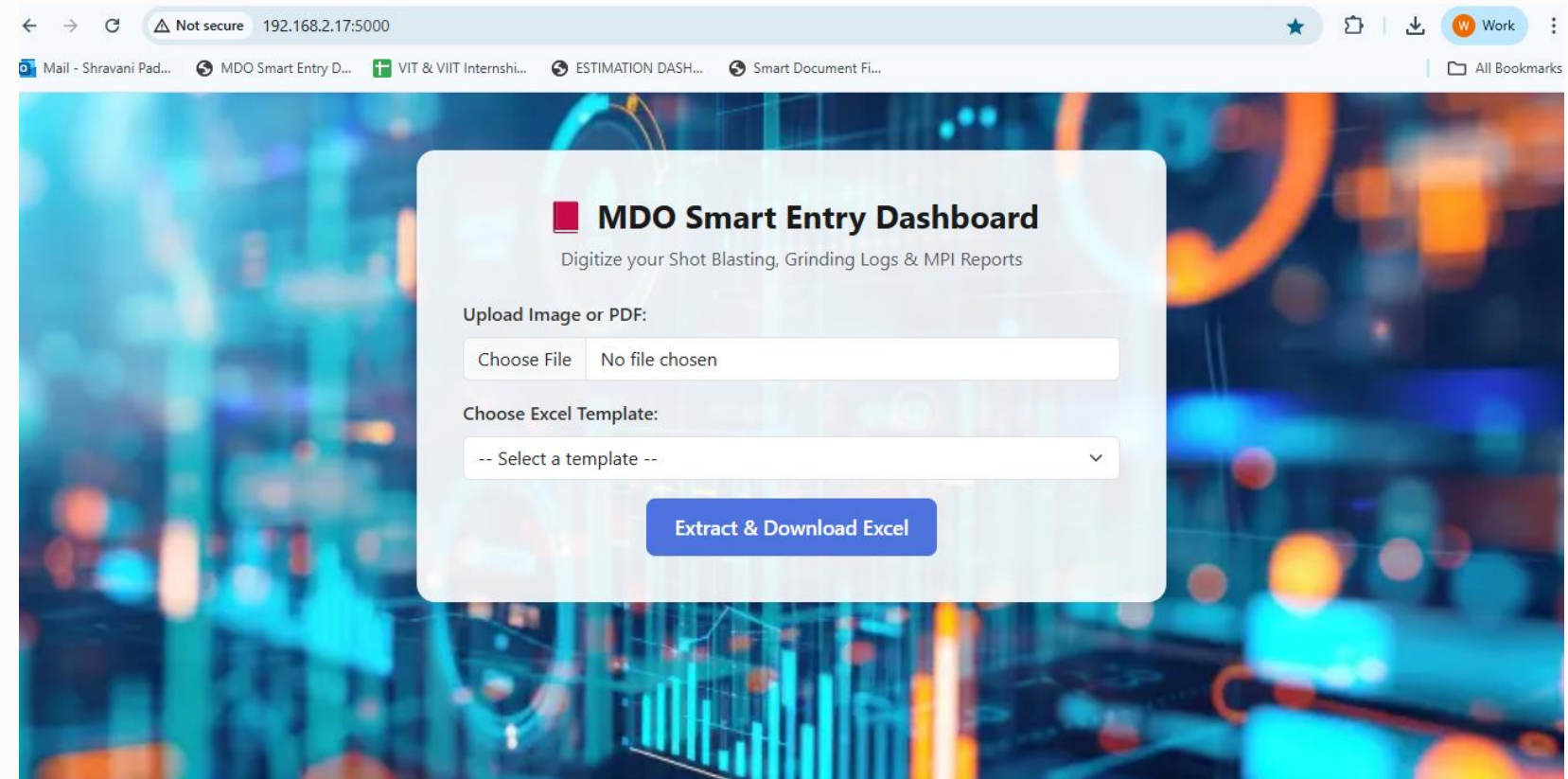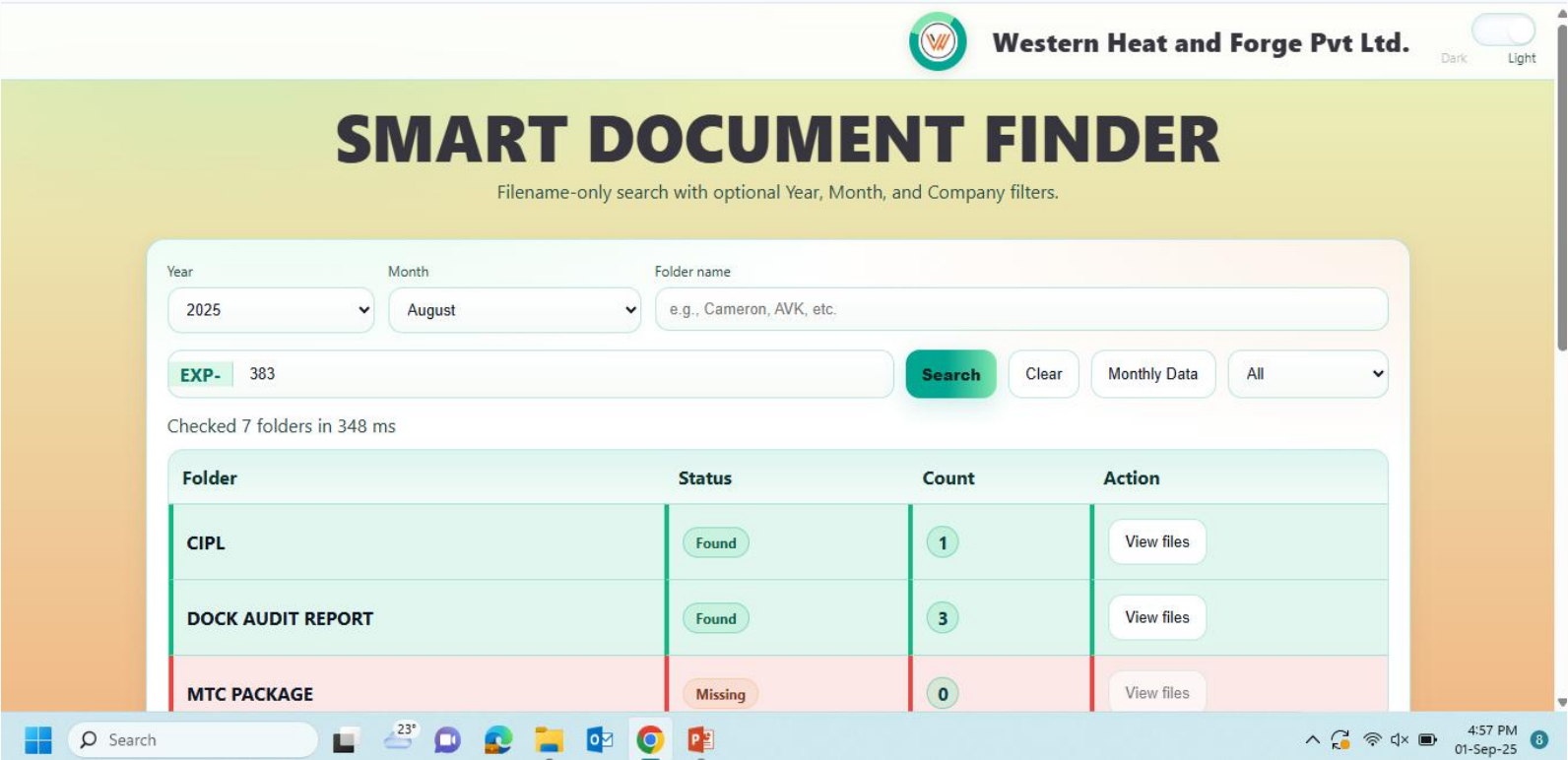
Project 2: Smart Document Finder

Objective: To implement an AI-based system for the MDO & Accounts Department to quickly locate documents like MTCs, Dock Audits, PDIRs, CIPL, POD, or BL. This project addresses the inefficiency of manual browsing through deep shared-drive folders, which is prone to delays from similar names, duplicates, and misfiling.

- Automate document search and retrieval.
- Reduce search time and operational delays.

Tech Stack:

- **Backend**: FastAPI + Pydantic, Uvicorn
- **Frontend**: HTML5, Vanilla JS ,CSS
- **Platform**: Inline preview & MIME detection; safe path allow-list + UNC; CORS; pagination/lazy loading; static serving

My Role: Full Stack Developer

Project 3: Die Document Finder

Objective: Manufacturing industries and tool-design companies maintain a large number of *die-related documents*—including CAD drawings, Excel specifications, dimensions, process sheets, and machining instructions.
The **Die Document Finder** is a smart search system designed to solve this challenge by enabling fast and accurate retrieval of die-related documents based on keywords, die numbers, or file attributes.

- Centralize all die files into a searchable system
- Provide fast keyword-based lookup
- Reduce time spent in searching documents

Tech Stack:

Frontend: HTML, CSS
Backend: Python ,Flask, openpyxl, OS file system operations, FastAPI + Pydantic
Platform: local file system directory (Data drive), browser

My Role: Full Stack Developer
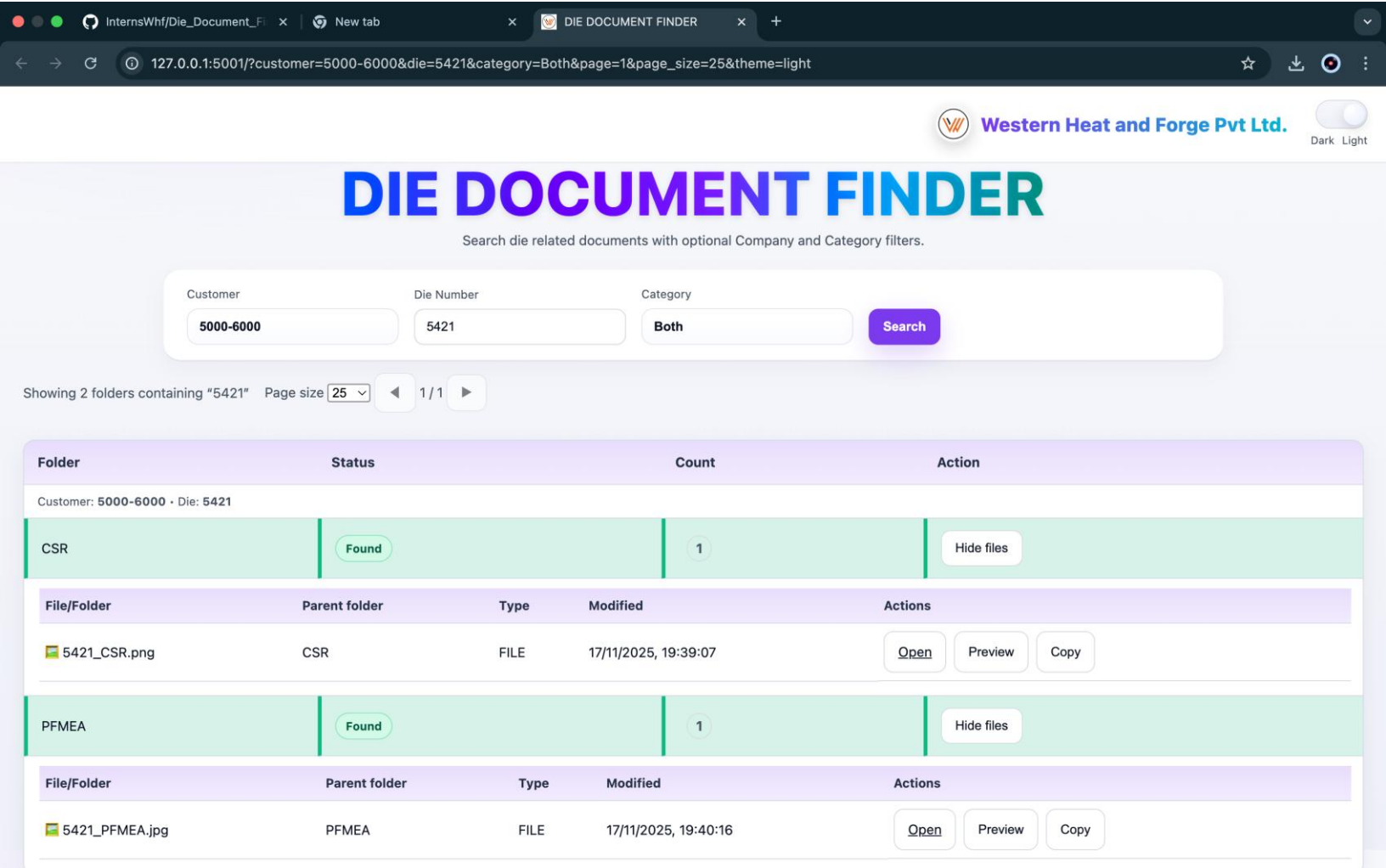
Project 4: Visitor Management System

Objective: The AI-Enabled Visitor Management System is a digital solution designed to replace traditional visitor logbooks and manual entry processes. It streamlines visitor check-in by capturing live photos through a webcam, auto-filling visitor details, generating instant ID cards, and securely storing all records in the cloud. With real-time data syncing, QR-based checkout, and automated timestamp recording.
- Eliminate manual visitor data entry and reduce human errors.
- Automate photo capture, ID card generation, and instant visitor registration.
-Store visitor data, photos, and timestamps securely in Google Sheets and Google Drive

Tech Stack:

Frontend: React, TypeScript, JavaScript (ES6+), Vite, HTML5, CSS3, Webcam Capture API
Backend: Google Apps Script (JavaScript), SpreadsheetApp, DriveApp, ContentService, WebApp API
Platform & Cloud: Google Sheets, Google Drive, Google Apps Script WebApp, Browser-based deployment

My Role: Full Stack Developer

Project 5: WhatsApp Task Bot WHF

Objective: To build an automated WhatsApp-based task management system where employees can **create, assign, and update tasks directly from WhatsApp**, and all task data is **instantly synced to Google Sheets** while also triggering **automated email notifications** for assigned tasks.
The system should run with **zero manual intervention**, provide 👋 **real-time updates**, and maintain proper accountability across teams.

Tech Stack:

Backend: FastAPI (API & Webhooks), Python, Google Cloud Run
WhatsApp Integration: WhatsApp Business Cloud API, Meta Webhooks
Data Storage: Google Sheets API
Email Service: Gmail API (Automatic task emails)
Utilities: Ngrok (Local webhook testing),Pydantic (Validation)
Requests/httpx (API calls),Logging (Debugging)

My Role: Full Stack Developer
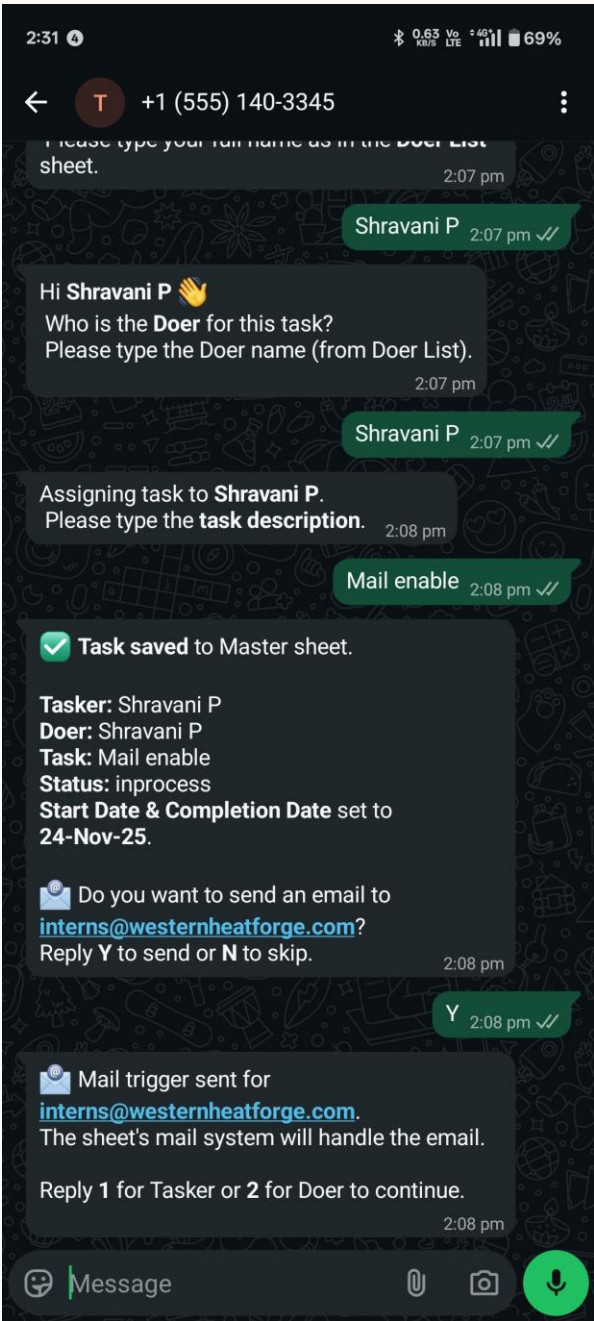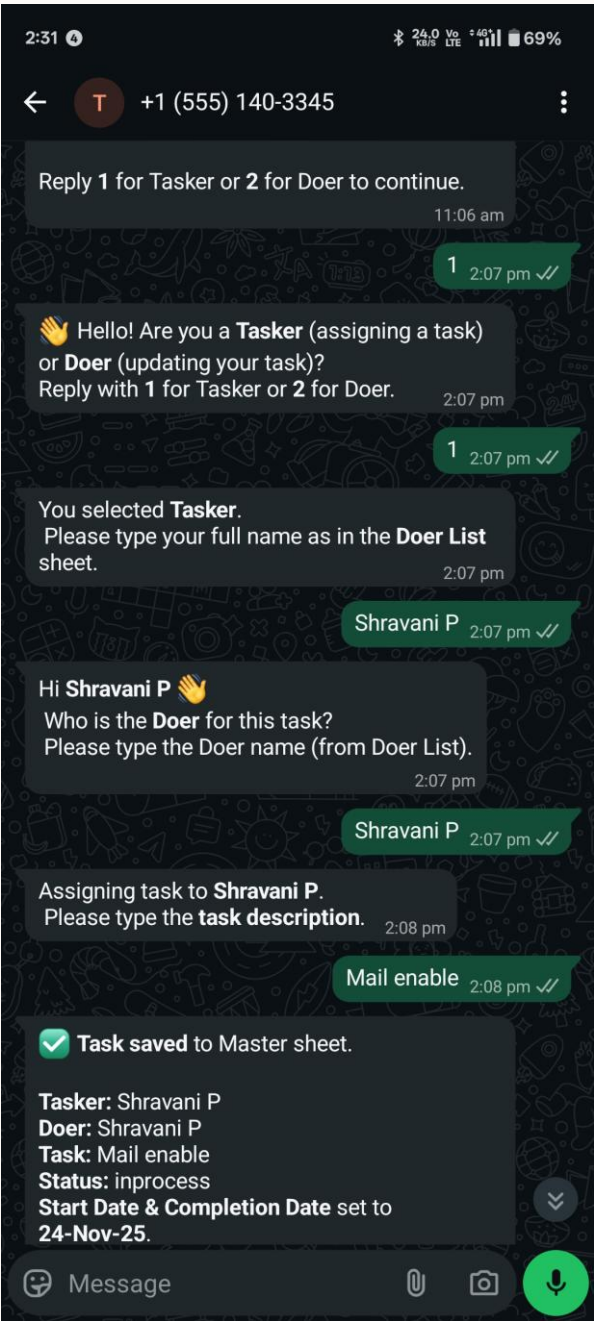
Skills and Learning

Technical:

- Learned how to build a complete **full-stack web application** using React, TypeScript, and Google Apps Script.
- Gained hands-on experience with **webcam integration**, real-time image capture, and dynamic form handling.
- Worked with **Google Sheets and Drive APIs** to automate data storage, image uploads, and timestamp logging.
- Implemented **QR-based workflows**, secure WebApp APIs, and real-time in/out tracking.
- Strengthened skills in **cloud automation, API communication, UI/UX design**, and deploying a production-ready system.
- Developed an understanding of building practical tools for **HR and security operations**.

Professional:

- **Working in an Industrial Setup:** Experienced firsthand the dynamics and operational challenges within a manufacturing environment.

- **Collaboration with Mentors:** Developed effective communication and collaboration skills by working closely with industry experts and college mentors.

- **Time-bound Project Execution:** Learned to manage project timelines efficiently, ensuring deliverables were met within specified deadlines while maintaining quality.

Thank You!